RANGELAND ECOLOGY AND MANAGEMENT - BS, RANGELAND RESOURCES OPTION

Students majoring in Rangeland Ecology and Management are taught to integrate knowledge and technology in a systems approach to manage land for sustainable utilization of natural resources. Emphasis is placed on conservation and maintenance of biological diversity in wet to arid environments and sustainable production, conservation and function of land. Rangelands comprise approximately 50% of the land area of the United States and the world. Natural resources on rangelands provide many products and values for society including: livestock grazing, habitat for game and non-game wildlife, water for urban and agricultural uses, recreational opportunities, minerals, oil and gas. The expansiveness and diversity of rangelands require that knowledge and technology be drawn from numerous disciplines.

Employment opportunities are diverse. They include all aspects of natural resource management, including ranch management, environmental consulting, conservation and natural resource planning on private lands and with state and federal agencies. Students also find employment in agribusiness sales, marketing, agricultural finance real estate, consulting and reclamation. Students can also pursue professional careers in teaching agricultural science.

Two options in the Rangeland Ecology and Management curriculum provide the opportunity for specialization in a minor field.

Rangeland Resources Option
Designed for students preparing for careers in the private, state and federal sectors in the area of natural resources conservation and management. It also provides good preparation for graduate study leading to positions in extension, teaching, research and consulting. It allows maximum flexibility to orient a degree program towards specific career interests. Students are encouraged to develop an emphasis area by selecting 15 hours of directed elective courses in related disciplines. Several suggested emphasis areas for the Rangeland Resources Option follow.

Emphasis Areas

Ecology
Designed for students to explore and specialize in a diverse array of ecological topics. They study plants and animals and the ecological principles essential for effective conservation, management and restoration of the land and associated natural resources. They are prepared for careers in resource monitoring, management and conservation with state and federal agencies and the private sector.

Environmental Science
Designed for students preparing for professional careers in environmental management. The coursework includes a basic foundation of ecological sciences, plant taxonomy and rangeland management with emphasis on plants, water and soils. Job opportunities are available in environmental consulting firms, public utility companies, municipalities and federal environmental agencies. The curriculum provides a good foundation for students planning to pursue graduate studies in watershed management, environmental sciences, pollution control or waste management.

Preveterinary Medicine
Prepares students for admission to the professional program in veterinary medicine. Students planning to work in large animal practice would benefit from studies in rangeland ecology and management.

Range/Soil Conservation
Designed to qualify students as range management specialists or soil conservationists with the federal government. The curriculum will provide students with competitive ratings with federal Civil Service for positions with the Natural Resources Conservation Service, Forest Service and Bureau of Land Management. Various electives and work experience may be used to increase the rating score. Job opportunities are also available in private and state organizations.

Teaching
For students majoring in rangeland ecology and management who wish to teach. Directed electives may be chosen so that, following this curriculum, the student is eligible to enter the induction year as a teacher of agricultural science under the Texas Education Agency Plan. Off-campus student teaching is required.

Watershed Resources
For students preparing for a professional career in watershed management. Graduates qualify for employment as range management specialists and soil conservationists or, with proper selection of electives, as hydrologists. Opportunities are also available in environmental consulting firms, public utility companies, land reclamation firms, municipalities, secondary school education and private land management.

Program Requirements

First Year

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
</tr>
</tbody>
</table>

AGEC 105 Introduction to Agricultural Economics 3
ESSM 201 1
RENR 205 & RENR 215 4
Select one of the following: 4
BIOL 101 Botany
BIOL 113 Essentials in Biology
HORT 201 & HORT 202 Horticultural Science and Practices Laboratory
Communication | 3
---|---
Spring | 
CHEM 119 | Fundamentals of Chemistry I | 4
ESSM 281 | Seminar in Ecosystem Science and Management | 1
American history | 3
Communication | 3
Mathematics | 3
Semester Credit Hours | 15
Second Year | 
Fall | 
ESSM 302 | 3
ESSM 314 | 3
ESSM 351 | 3
Mathematics | 3
Emphasis area elective | 3
Semester Credit Hours | 14
Spring | 
ESSM 301 | 3
ESSM 303 | 3 or ESSM 304
ESSM 313 | 3
ESSM 317 | 3
SCSC 310 | Soil Morphology and Interpretations | 2
Semester Credit Hours | 15
Summer | 
Creative arts | 3
Language, philosophy and culture | 3
Semester Credit Hours | 14
Third Year | 
Fall | 
SCSC 301 | Soil Science | 4
Select one of the following: | 3
AGEC 325 | Principles of Farm and Ranch Management
AGEC 350 | Environmental and Natural Resource Economics
ESSM 318 | 
ESSM 404 | 
ESSM 406 | 
RENR 470 | 
Semester Credit Hours | 6
Spring | 
RENR 410 | 4 or ESSM 415
Government/Political science | 3
Emphasis area elective | 3
Semester Credit Hours | 12
Total Semester Credit Hours | 120

1 Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses and 3 hours of Cultural Discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

2 To be selected from an approved list in consultation with an advisor.
Credit by examination may be used to substitute 3 hours of POLS 206 or POLS 207.